



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION II**

Date: MAY 15 2002

Subject: Lehigh Valley Railroad Derailment Superfund Site
Town of LeRoy, Genesee County, New York
Comments/Issues Regarding the March 1997 Record of Decision issued by the New York State Department of Environmental Conservation

From: Richard L. Caspe, P.E., Director
Emergency and Remedial Response Division

To: Jane M. Kenny
Regional Administrator

This memorandum requests your concurrence on the source-control components of the remedy selected in the New York State Department of Environmental Conservation's (DEC's) March 1997 Record of Decision (ROD) for the Lehigh Valley Railroad Derailment Superfund Site (Site).

By letter dated July 27, 1999, the United States Environmental Protection Agency (EPA) concurred with the installation of a waterline, a component of the ROD-selected remedy, and reserved its concurrence as to the two source-control components of the remedy (*i.e.*, ex-situ soil vapor extraction (SVE) and in-situ bedrock vapor extraction (BVE)) pending receipt of the results of pilot studies performed by the DEC. The pilot studies have been completed and indicate that the source-control measures will be effective. The EPA also reserved concurrence on the ground-water components of the ROD and decided to undertake additional ground-water investigations.

A brief background of the Site follows as well as a list of the EPA's points of concern with the ROD and how each point will be addressed.

BACKGROUND:

The Site, which can be found in Genesee, Monroe, and Livingston Counties, near the Town of LeRoy, New York, includes the location of a chemical spill caused by a 1970 train derailment and the resulting contaminated ground-water plume. The Site is in a rural setting, and the surrounding area is used for residential, recreational, and commercial purposes.

The train derailment occurred at approximately 3:30 a.m. on December 6, 1970. Approximately one ton of cyanide crystals and approximately 30,000 gallons of trichloroethene (TCE) were spilled onto

the ground in the "Spill Zone." Because a significant amount of water was used to flush the chemicals after the initial spill, the Spill Zone now consists of an approximately 10-acre area surrounding the derailment location where spilled chemicals remain in the bedrock and surface soils.

TCE odors were noticed eight days after the derailment in the basement of the Knickerbocker Hotel, which was located 200 feet north of the Spill Zone. The Lehigh Valley Railroad attempted to alleviate the odors by flushing the TCE out of the soil. The Railroad dug trenches near the Spill Zone, pumped approximately one million gallons of water into the trenches and allowed it to percolate into the ground. Owners of private wells located along Gulf Road east of the Spill Zone noticed TCE in their water supplies about one week after the spill. By November 1971, seven wells had become contaminated with TCE concentrations of up to 171 parts per million (ppm). The Lehigh Valley Railroad provided drinking water to residents with contaminated wells beginning in June 1971, and later installed and maintained charcoal-filtering systems at the affected wells.

In September 1989, TCE was detected during routine sampling of the Genesee County Campground well which is located more than 1.5 miles east of the Spill Zone. Further sampling of private wells by the New York State Department of Health, the EPA, and the DEC between 1990 and 1994 detected TCE in approximately 50 wells located east or southeast of the Spill Zone. In December 1991, the EPA began installing activated-carbon water-treatment systems at 37 locations.

The bedrock aquifer, the only significant source of ground water for private wells near the Site, is utilized by a population of approximately 2,500. The nearest public supply wells are located in the Village of Caledonia more than four miles east of the Site.

In response to a release or a threat of a release of a hazardous substance(s) at or from the Site, the DEC commenced in September 1992, a Remedial Investigation and Feasibility Study (RI/FS) for the Site pursuant to 40 C.F.R. §300.430. The DEC conducted the RI/FS without funding from the EPA's Superfund Program. The DEC completed a Remedial Investigation (RI) report in October 1996, and two Feasibility Study (FS) Reports in January and February 1997.

The results of soil sampling conducted in September 1992, December 1992, and October 1994 showed TCE concentrations ranging from 46 to 550,000 parts per billion (ppb). The hydrogeologic investigation showed that there is a source of TCE contamination remaining in the unsaturated soil and bedrock at the Spill Zone, and a ground-water plume extending almost four miles east and southeast of the Spill Zone.

The DEC published notice of the completion of the FS and of the proposed plan for remedial action on February 14, 1997, in a major local newspaper of general circulation. The DEC provided an opportunity for written and oral comments from the public on the proposed plan for remedial action. A copy of the transcript of the public meeting is part of the Administrative Record for the ROD.

The DEC issued the ROD for the Site in March 1997. The ROD selected an ex-situ SVE system and an in-situ BVE system as source-control measures. A waterline extension was also selected in order to provide a safe, potable water supply to all affected residents and businesses.

The major remedial components of the ROD include:

- the design and construction of a waterline extension to connect all impacted residents and businesses to a potable water supply;
- the excavation of soil containing TCE in excess of 7.0 ppm (approximately 10,000 cubic yards) and on-Site treatment by an ex-situ SVE system; and,
- the installation of a BVE system within a 10-acre dense nonaqueous phase liquid (DNAPL) zone (also known as the "Spill Zone") and operation of the BVE system until cleanup objectives are achieved in ground water immediately downgradient of the Spill Zone.

While the ROD-selected remedy does not specifically provide for the restoration of the ground-water aquifer, it notes that the soils must be remediated to the point that they no longer contribute significantly to the contamination of the ground water. The EPA will undertake additional ground-water investigations to evaluate the restoration of the aquifer to drinking-water standards. The ROD also includes a responsiveness summary in which all significant comments submitted to the DEC during the public comment period are addressed.

In August of 1998, the DEC submitted to the EPA the RI/FS Reports and the 1997 ROD and requested that the Site be placed on the National Priorities List (NPL). The DEC asked that the EPA approve the 1997 ROD and assume lead-agency responsibility for implementing all aspects of the remedy other than the waterline. The DEC agreed to continue its work on the waterline component of the remedy. The EPA also indicated that it would conduct investigations aimed at evaluating restoration of the aquifer.

Pursuant to Section 105 of CERCLA, 42 U.S.C. § 9605, the EPA placed the Site on the NPL in January 1999.

With respect to implementing the two source-control remedies from the DEC's ROD, ex-situ SVE and in-situ BVE, the DEC conducted a pilot study in April of 1999 to verify the components of the conceptual design and to provide the details necessary for the construction, operation, and maintenance of the two remedies. The information gathered from the pilot study was used to evaluate the feasibility of remediating the soil and bedrock vadose zone contaminated with TCE using vapor extraction technology. The information will also be used to optimize the design of the full-scale remediation system.

The results of the pilot study indicated that, through proper design, ex-situ SVE and in-situ BVE should be effective in achieving TCE cleanup objectives for soil. In the case of the BVE, the critical design criteria will center around positioning the extraction wells at the intersection of major bedrock fractures to maximize contaminant removal while minimizing the actual number of extraction wells. During the design phase, consideration will also be given to utilizing a combined SVE/BVE approach to remediating the Spill Zone.

On July 27, 1999, the EPA concurred with the waterline component of the 1997 ROD-selected remedy, however, it did not concur on the source-control components of the ROD. The EPA also indicated that it believed that the 1997 ROD did not adequately address the restoration of ground water, and that it would assume the lead for future ground-water studies.

With regard to the waterline component of the remedy, the final design has been completed and was approved by the EPA in October 2001. Construction of the waterline began in December 2001.

ISSUES:

The ROD does not adequately address the restoration of ground water to its beneficial use as required in the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). The EPA will evaluate the restoration of ground water as a separate operable unit and will perform a remedial investigation and feasibility study.

With respect to the source-control components of the ROD with which the EPA did not concur in 1999, I believe that with the following emendations, the EPA should now concur with the 1997 ROD.

I. ARARs

The 1997 ROD states that Site data were compared to New York State Standards, Criteria, and Guidance(s) (SCGs). For purposes of CERCLA, the ROD must identify the Applicable or Relevant and Appropriate Requirements (ARARs), as well as advisories, guidance, etc., that are to-be-considered (TBCs). Although there is an overlap between the two approaches, SCGs are not always the same as ARARs and TBCs. Accordingly, this memorandum supplements the ROD's discussion of cleanup and other standards. The location-specific, action-specific, and chemical-specific ARARs and TBCs for the source-control components of the remedy are identified below, and certain additional steps that will be required to attain compliance with those standards are described below.

1. Executive Order No. 11988, "Floodplain Management": Portions of the project area adjacent to Mud Creek and Spring Creek are located within the 100-year and 500-year floodplain. As remedial activities are proposed for the 100-year or 500-year floodplain, a floodplain assessment will be performed during remedial design to minimize or avoid the adverse effects of a 500-year event, and to protect against the spread of contaminants and the long-term disabling of remedial treatment systems. This assessment will include a delineation of the floodplain on a Site map in relation to areas of contamination and remedial activities, a discussion of the effects of the proposed remedial action on the floodplain, and measures to minimize potentially adverse floodplain impacts.
2. The Federal Water Pollution Control Act, 33 U.S.C. § 1344 and Protection of Wetlands, Executive Order No. 11990, 40 CFR Part 6, Appendix A: A Wetlands Delineation Work Plan will be developed and any requisite mitigative measures

resulting from the delineation work will be addressed during remedial design and construction.

3. The National Historic Preservation Act (NHPA), 16 U.S.C. § 470: A review of the Site's descriptive data suggests the potential for the discovery of both historic and prehistoric resources within the project area. A Stage IA Cultural Resource Survey (CRS) has been carried out for the project area of operable unit one (OU1) where the waterline will be constructed. An additional Stage IA CRS will be conducted within the Spill Zone. These areas will be subject to a subsequent Stage IB CRS field survey where construction-related impacts are scheduled to occur.
4. The Endangered Species Act, 16 U.S.C. § 1531: The U.S. Fish and Wildlife Service will be consulted to determine whether endangered or threatened species and/or their habitats exist on or in the vicinity of the Site during the remedial design phase of the project.
5. The Fish and Wildlife Coordination Act (FWCA), 16 U.S.C. § 661: In accordance with the FWCA, state and federal wildlife agencies will be consulted when wetlands and water resources may be or are actually being impacted.
6. Air Compliance (Action-Specific) ARARs and TBCs:
 - a) 40 CFR Part 61 - National Ambient Air Quality Standards for Hazardous Air Pollutants (ARAR),
 - b) 40 CFR Part 254.25 - Excavation and Fugitive Dust Emissions (ARAR),
 - c) 6 New York Code of Rules and Regulations (NYCRR) Part 200.6 - Ambient Air Quality Standards (ARAR),
 - d) NYSDEC Control of Toxic Ambient Air Contaminants, Air Guide I (TBC),
 - e) NYSDOH Guidelines for TCE in air (TBC), and
 - f) ATSDR Environmental Media Evaluation Guides for indoor air-screening levels (TBC).
7. The NYSDEC SCGs for TCE encompass the federal ARARs. The SCGs are listed in Table I of the 1997 ROD and are as follows:

| | |
|---------------------------|--------|
| Ground Water: | 5 ppb |
| Spring Water: | 5 ppb |
| Surface Water in Streams: | 11 ppb |

Sediments:

46 ppb

II. Statutory Determinations

The Declaration Statement of the 1997 ROD contains language that closely tracks, but is not identical to, the statutory determinations required under CERCLA.

CERCLA Section 121 provides that the selected remedial action must:

- (1) be protective of human health and the environment;
- (2) attain a level or standard of control of the hazardous substances, pollutants and contaminants, which at least attain ARARs under federal and state laws (unless a waiver is justified);
- (3) be cost-effective;
- (4) utilize permanent solutions and alternative treatment (or resource recovery) technologies to the maximum extent practicable; and,
- (5) satisfy the statutory preference for remediation that employs treatment to reduce the toxicity, mobility, or volume of the hazardous substances, pollutants or contaminants at a site.

These requirements are satisfied here. The source-control components of the March 1997 ROD address the principal threats to human health and the environment that are posed by contaminated soils and DNAPLs at the Site. Exposure to ground water with concentrations as high as 58,000 ppb will be addressed by the construction of a waterline extension which will connect all impacted residents to a potable water supply. It will also be addressed by the excavation of approximately 10,000 cubic yards of TCE-contaminated soil and on-Site treatment by ex-situ vapor extraction, and the installation of a BVE system within the Spill Zone. These actions will also address the exposure to TCE-contaminated soil with concentrations as high as 550 ppm. The environment will be protected by the removal of source material (*i.e.*, DNAPL) in the bedrock. The EPA will address the remediation of ground water as a separate operable unit.

The source-control and the waterline elements of the selected remedy are protective of human health and the environment because the waterline extension will protect human health from the exposure to TCE-contaminated ground water. The excavation and subsequent ex-situ SVE of TCE-contaminated soil at the Spill Zone along with the installation of an in-situ BVE system will employ treatment technologies which will significantly reduce toxicity, mobility, and volume of contamination in the source area. The selected remedy will comply with all federal and state requirements that are legally applicable, or relevant and appropriate to the source-control and waterline components of the remedial action. These components of the remedy are cost-effective because they offer a high degree of effectiveness at a lower cost when compared to the other alternatives evaluated.

The remedy provides the best balance of trade-offs among the alternatives with respect to the evaluation criteria and utilizes permanent solutions and alternative treatment technologies to the

maximum extent practicable. The utilization of ex-situ SVE of the excavated soil and in-situ BVE will significantly reduce the toxicity, mobility, and volume of the TCE at the Site, and will satisfy the statutory preference for remedies that employ treatment as a principal element. A review of the Site will be conducted no later than five years after commencement of the remedial action to ensure that the remedy continues to provide adequate protection of human health and the environment.

III. Risk Assessment

The DEC performed a human health evaluation at the Site and produced a report entitled "Remedial Investigation Report - Lehigh Valley Railroad Derailment Site, Town of LeRoy, County of Genesee, New York" in October 1996. The EPA reviewed this report in February 2001 and concluded that the protocols of the DEC's human health evaluation were not consistent with the EPA's guidance and policies for conducting a baseline human health risk assessment.

In January 2002 and in accordance with its guidance and policies for conducting baseline human health risk assessments, the EPA completed a risk assessment to evaluate the hazards and risks from exposure to soil at the Spill Zone. For chemicals which cause noncancer effects, the EPA has established an acceptable hazard index (HI) of 1. The HI represents the sum of the individual exposure levels compared to their corresponding reference doses. The key concept for a noncancer HI is that a threshold level (measured as an HI of less than 1) exists below which noncancer health effects are not expected to occur. The EPA found that the highest non-carcinogenic hazard from all soils within the Spill Zone was 5.4, which exceeds the acceptable value of 1. In addition, for known or suspected carcinogens, the EPA has established an acceptable cancer risk range of one-in-a-million (1×10^{-6}) to one-in-ten thousand (1×10^{-4}). Action is generally warranted when excess lifetime cancer risk exceeds one-in-ten-thousand. The EPA found that the highest carcinogenic risk from all soils within the Spill Zone was approximately 1.1×10^{-4} , which approaches the upper boundary of the EPA's acceptable risk range. Based on the hazards and risks to human health, the EPA is obliged to take remedial action. The EPA's evaluative memoranda are included in the Administrative Record for the Site.

Further, the EPA believes that the application of SVE and BVE will significantly reduce the concentration of TCE in the soil and bedrock, thus reducing its vertical migration and impact to the groundwater. It is anticipated that in turn, this action will reduce the length of time required to achieve ground-water cleanup by preventing TCE from continuing to enter the ground water.

Also, the EPA is presently conducting an assessment of vapor intrusion pathways in buildings near federal Superfund sites. Adequate assessment of potential impacts to indoor air from ground water contaminated with volatile organic compounds has become a significant regional and national issue. As part of this effort, EPA staff will perform screenings of select buildings in the area of the Site.

IV. Administrative Record

The DEC established an Administrative Record containing the documents that form the basis of its selection of the remedial action. The Administrative Record is located at the offices of the DEC in Albany, New York. Since the EPA has become the lead agency for the source-control and ground-

water remediation phases of the project, an Administrative Record has been established at the EPA's offices at 290 Broadway, 18th Floor, New York, New York. The EPA's Administrative Record includes the documents that formed the basis of the DEC's 1997 ROD and documents and data of import created subsequent to that date.

RECOMMENDATION:

We recommend that you indicate your approval in the space provided below and also sign the attached letter adopting and concurring with the two source-control measures contained in the DEC's 1997 ROD. This will allow the source-control elements of the remediation of the Site to proceed. Further investigation of the ground-water contamination is being planned in order to evaluate the feasibility of aquifer restoration.

APPROVED:

Jane M. Kenny

Jane M. Kenny, Regional Administrator

DISAPPROVED:

Jane M. Kenny, Regional Administrator

DATE:

MAY 21 2002